

***FY99 Section 105 State and Tribal Assistance Grant
Request for Proposal:
Methods for Estimating Construction Equipment Activity
at the Local Level***

I. Background

With nonroad equipment contributing a significant fraction of NO_x and PM emissions in many areas, states are increasingly interested both in reducing nonroad emissions and in gaining “credit” for such reductions. The basis for evaluating the impact of emission control policies is an accurate baseline nonroad emissions inventory and projection. The components of a nonroad emission inventory are the emission rates (mass of pollutant emitted per unit of use or work) and activity for each equipment type. Activity as used here includes estimates of engine populations, power level, load factor (fraction of available power), fuel consumption, and hours of use per unit of time.

EPA is developing a nonroad air emissions inventory model called NONROAD. NONROAD will offer national default values for emission rates, power levels, load factors, and hours of use. National engine population data will be distributed to the state and county level using various indicators (e.g., the dollar value of construction by county will be used to distribute the national population of construction equipment to the state and local level). The validity of these estimates in local situations has not been confirmed.

Model users will be encouraged to substitute local data to improve upon the accuracy of the default estimates in NONROAD. Emission rates are unlikely to vary much with location, but activity will vary considerably across the country. Unfortunately, little information is available to help states collect such local data. Methods for estimating local nonroad activity are needed so states can verify their nonroad inventories. The focus of this proposal is to develop one or more methods states can use to estimate or measure local activity for compression-ignition (i.e., diesel) construction equipment, since this category represents a significant portion of total nonroad NO_x and PM emissions.

II Project Description

The goal of this proposal is to collect detailed activity data in one or more areas and use these data to both improve estimates of the local emission inventory and to develop more practical methods states can use to quantify local activity for compression-ignition construction equipment. Activity parameters of interest include: engine populations (by power level and age), load factor, fuel consumption, and hours of use by age for annual, seasonal, and daily time periods. More than one method may be necessary, since there may not be one method that best

quantifies all these activity parameters. The final methods can take the form of a retrospective survey, diaries, usual observations, and/or use of data loggers to determine this information in a direct “bottom-up” fashion, indirect estimation via local data such as fuel sales, construction industry activity, etc., as refinements to the “top-down” method used by NONROAD to allocate national populations to local areas, or approaches for states to validate the default values at the local level. The methods need to be practical for the states to adopt, in terms of cost and ease of use, and written in a detailed, clear manner for the states to use directly, if desired.

One possible approach is given as follows; however, applicants are encouraged to propose alternative approaches. Presently, EPA believes that step 1 below is an essential aspect of any acceptable approach.

- 1) Collect detailed information on construction equipment activity for one or more selected areas, to be used as a benchmark for evaluating practical, alternate methods. This could be done via retrospective surveys, diaries, usual observations, data loggers, or a combination of these. The area(s) should comprise one or more counties. If sampling is used, it must be carefully randomized.
- 2) Perform a review and analysis of known methods that have been used by state and local agencies and EPA/NONROAD to collect local construction equipment activity data. In addition, seek ideas and techniques from other sectors that have attempted to quantify activity parameters of interest, such as fuel consumption. Develop other methods that could be used (e.g., other indicators such as building permits that could be used to characterize construction equipment activity in an area).

Evaluate the methods in terms of their accuracy (e.g., have the results been validated in some way against other known data, and if not, could they be), cost, ability to collect activity-related information, range of geographic applicability, ability to easily repeat or update estimates, ability to produce estimates over various time periods (i.e., annual, seasonal, and daily), and applicability to other types of equipment.

- 3) Evaluate and compare the methods with the detailed information collected on construction equipment activity. Recommend one or more methods, or develop one or more new methods that produce the desired result.
- 4) Apply the recommended methods in other areas and compare with existing estimates.
- 5) Prepare a detailed description of the recommended method(s), in a form the states could use directly.

III. Deadline

The deadline for submitting proposals (original and six copies) is June 21, 1999. Proposals should be sent to:

Penny Carey
U.S. EPA (AMD)
2000 Traverwood Drive
Ann Arbor, MI 48105
(Phone) 734-214-4355 (Fax) 734-214-4939
(Email) carey.penny@epa.gov

[Note: Proposals may be faxed or sent via email, but must be followed by a hard copy original.]

IV. Funding Issues

One grant will be awarded, with the amount of available funding not to exceed \$300,000. If a proposal with a 2-year project period is submitted, the budget and cost estimate should be designed to indicate what will be accomplished in each of the first and second years. The competition process will be managed by OMS. The selected proposal will be awarded by the appropriate EPA Regional office and funded through Section 105 authority.

Clean Air Act Section 105 mandates that eligible agencies provide matching funds of at least 40%. Therefore, if an air pollution control agency submits a proposal for which they do not already have matching funds, they must include a statement in their proposal indicating that the match could be met if their proposal is selected. Organizations unable to meet a required match will be considered ineligible. (This requirement does not apply to multi state organizations.) Organizations which are unclear as to their matching status are recommended to contact their EPA Regional Grant Coordinator.

V. Eligible Organizations

Proposals can be accepted from multi state organizations, collaborations of air pollution control agencies, and state and local air agencies (individual agencies will be considered so long as the project to be undertaken will have replicability to other communities nationally.) The selected project will be awarded through the appropriate EPA regions or multi state organization.

VI. Criteria for Selection

- Proposals will be evaluated based on the following criteria and weighted as follows:
- Qualifications and previous experience in estimation of inventories, survey methodologies, and data collection (15 points)
 - Program design/technical approach (40 points)

- Creativity and innovation (consideration of issues; including portability of approach and aspects not specifically identified in RFP) (20 points)
- Project funding (appropriate levels of funding) (10 points)
- Project time frame (5 points)
- Communication plan (progress reports, draft and final reports, other) (10 points)

VII. Content of Proposal

Proposals should include: background, project summary, description of specific actions to be undertaken (including estimated time line for each task), work products, estimated budget (including estimated cost for each task), time frame for project from initiation through completion, project contacts and any other relevant information to assist in the selection process. Please note that submission of a proposal does not guarantee funding. Only the selected organization will be required to submit a complete EPA grant application package to the appropriate EPA Regional Office.

Allocation of funds will depend ultimately on quality and merit of proposals.

VIII. OMS Contact

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